

How Are We Doing? - Performance

Last Updated Tuesday, 05 September 2006

An important question with any plan is “How does the plan perform given the investment?” To address this question, traditional vehicle-based performance measures were supplemented with new measures reflecting the accessibility and mobility of the multimodal transportation system.

1996 TMP Performance Measures

In the 1996 TMP, key performance measurements were identified. These performance measures resulted from the development and application of a transportation model developed specifically for the Boulder Valley as part of that TMP update. This model included the most recent assumptions regarding 2020 growth in population and employment.

The key 1996 TMP performance measures included:

- Alternative Modes as a Percent of Total Trips;
- Vehicle Miles of Travel (VMT);
- Percent of Arterial Lane Miles Congested;and
- Air Quality
 - Carbon Monoxide (CO) Emissions
 - Volatile Organic Compounds (VOC) Emissions
 - Nitrous Oxide (NOx) Emissions.

2003 TMP Performance Measures

The forecast for significant growth in population and employment within the Boulder Valley will result in increased congestion on the regional corridors. As discussed in the Regional Focus Area, this results from a lack of funded investments in the regional corridors. The modeling conservatively assumes existing, dedicated funds for these regional connections. However, with the increased investments within the Boulder Valley proposed in this Plan, from the Current Funding program through the Action Plan to the Vision, improved access and connections to alternative modes is provided. (Compare all three investment packages and performance (97.17 KB).) This improved access to alternative modes results in reductions in the expected congestion and improved mobility. However, the resulting congestion levels will be higher than exist today with significant congestion increases on the regional corridors if additional improvements are not funded.

Other transportation measurements.

Click on the chart for a larger view

Air Quality

The Denver region has been out of compliance with federal air quality standards for most of the time that those

standards have existed. Regional pollutants with established federal health-based standards include carbon monoxide, particulate matter and ozone. While industry, power plants and other activities contribute to air pollution, automobiles are the largest source for carbon monoxide and a major contributor to the others.

Carbon monoxide (CO) is a colorless, odorless gas that is formed from incomplete combustion and inhibits the body's ability to transport oxygen in the bloodstream.

Ozone pollution is formed when volatile organic compounds (VOCs) and nitrogen oxides (NOx) react in the presence of sunlight. Emissions from local industry, cars, paints and even our lawn mowers contribute to ozone formation. At ground level, ozone is an irritant to everyone and can cause breathing problems and respiratory infections in the elderly, the young, and those with pre-existing ailments. Healthy people who exercise or work outdoors can experience breathing problems when exposed to ozone.

Particulate matter (PM) refers to airborne particles that can be inhaled and reduce lung function. Larger particles come from windblown dust, unpaved roads and street sand. Smaller particles are more hazardous to health and come from motor vehicles, power generation, diesel emissions, and wood smoke.

While the Denver region recently achieved the federal standards for air pollution, this was almost entirely due to improvements in motor vehicle technology. With the continued increase in the miles of vehicle travel, the region will likely return to violating air quality standards. Increased vehicle travel will also increase the amount of CO₂ (carbon dioxide) produced, a gas implicated in global warming. Therefore, the TMP contains a new section on Alternatively Fueled Vehicles.

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Corridor Level of Service

Level of Service (LOS) is a measure of how well the roadway system is operating in terms of moving motor vehicles. It includes factors such as the delay at traffic signals and the ability for a driver to make the desired movements. LOS is similar to a report card where A is excellent and F is failure. Currently, the overall Level of Service for the multimodal corridors is LOS C. With forecasted traffic growth, this overall level of service will drop to a mid LOS D without additional improvements or improve to a high D with the Current Funding roadway improvements coupled with the expected shifts in trips to alternative modes. The composite multimodal corridor LOS rating will improve to upper D/ lower C with the investment and mode shift expected from the Action Plan.

Facility Performance

To address multimodal facility performance, pedestrian, bicycle and transit facilities were evaluated for each of the multimodal corridor segments and rated from high to low on the basis of quality of their facilities for pedestrian, bicycle, and transit travel. These individual corridor segment rankings were then aggregated for the overall city composite rating presented below.

In general, the city of Boulder's multimodal transportation corridors

currently have moderate to good pedestrian, bicycle and transit facilities. Whereas Current Funding will provide some improvement toward Boulder's vision, the additional investment of the Action Plan makes further progress toward this vision.

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Citywide Mobility Index

The Transportation Equity Act for the 21st Century (TEA-21) provides a new framework for addressing mobility in our community. A key element of this federal legislation was recognizing that mobility is defined in a larger context than just automobile travel. The Citywide Mobility Index reflects this by considering mobility for all modes. It was created by aggregating the above corridor levels of service and facility performance measures for pedestrian, bicycle, transit and roadway. Each was weighted based on its share of total trips in Boulder for today and in the future.

This measurement is similar to the Congestion Burden Index generated by the Surface Transportation Policy Project (STPP) and seeks to balance the proportion of an area's population subjected to traffic congestion with its ability to utilize other modes of transportation. Improvements in the other modes with limited increases in roadway congestion may increase the overall mobility of a community or at least somewhat compensate for increases in roadway congestion.

The Citywide Mobility Index shows that with increased travel growth in the city of Boulder, overall mobility will decrease without transportation investments. With the investments under Current Funding, overall mobility remains about the same as today while the investments of the Action Plan are expected to improve overall mobility within the city.